

Materials Tip



Materials Engineering Branch

Transfer Film Adhesives: A Useful Alternative to Resin Adhesives			
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Transfer film adhesives tapes are very similar in appearance to pressure-sensitive adhesive tapes in that both consist of an adhesive attached to a backing material. The difference between the two is that for transfer film adhesive tapes, the backing material is removed from the adhesive subsequent to attaching it to the working surface, thereby leaving only the adhesive on the working surface; for pressure sensitive tapes, the adhesive and backing material are attached to the working surface where they remain intact. Another type of pressure sensitive tape with a backing is the double sided version, with the adhesive on both sides and a supporting layer sandwiched in the middle.

Transfer film adhesives possess a number of advantages over the one- and two-part resin adhesives, i.e., weighing, mixing, degassing, and waiting for cure are virtually eliminated. The bond achieved by the transfer film is immediate, and little or no waiting for the next step in the process is required. Films are available with a wide variety of properties that fulfill the needs of many users.

Some of the disadvantages associated with transfer film adhesives are that they tend to creep a little under load and are, therefore, not a good choice for some structural applications. They have poor performance at high temperatures, and they are shelf-life limited.

While some film adhesives are acceptable for space flight use from an outgassing standpoint, others are not. The reader should refer to NASA Ref. Pub 1124 Revised for acceptable film adhesives. As a rule, the acrylic adhesives (as compared to silicone adhesives, for example) have the lowest outgassing.

Acrylic transfer film adhesives have been used successfully for many years in the aerospace field for electronics, structural applications (limited), heater mounting, shimming, etc. Their use requires less time, less equipment, somewhat less experience, and could be a significant cost saver. Transfer film adhesives offer a viable alternative to the resin adhesive systems for a variety of bonding operations.